



Synopses

December 1998, Issue 18

Encomium: A Tribute to Dr Roger Kingsley Hall, and an Outline of His Achievements and His Contribution to Paediatric Dentistry

L B Messer, ANZSPD Meeting, September 10, 1998

Introduction

Thank you, Madamè Chairman. I was very pleased, honoured and humbled when several months ago Dr Eda Franco and her Planning Committee for this 25th Anniversary of ANZSPD, asked me to prepare an Encomium for Dr Roger Hall.

At the time I had no idea of the retrospective adventure I would be taking with a large number of people, as they very willingly shared their time and their hospitality and together we went on a journey of their recollections and reminiscences. of Dr Hall himself, his life work and interests, his development of the Department of Dentistry at the Royal Children's Hospital of Melbourne, and his achievements and contribution to the profession.

And at the outset I want to acknowledge some of those people and thank them, in alphabetical order, John Brownbill, Glen Burke, Hanny Calache, Eda Franco, Vera Hall, John Harcourt, Ailsa Hyland, Tissa Jayasekara, Jamie Lucas, Margaret Moscop, Chris Olsen, John Sheahan, Joe Verco, Rick Widmer, and of course, Roger himself.

The Early Years

To put a remarkable career into perspective, characterized by as much early promise as later fulfillment, I would like to start with the early years when he was educated at Melbourne Grammar School. His early and then lifelong interest in drama was nurtured by his aunt Dorothy Dwyer who was a speech and drama teacher at the Methodist Ladies College. His school days were also marked by a close association with Barry Humphries, who was even then somewhat eccentric and different,

while young Roger was quite consistent. They acted together all through their University days.

In 1952 he entered The College of Dentistry, then located on Spring Street, Melbourne. During his undergraduate studies, he received eight prizes, including five in final year, and also the Ernest Joske Memorial Prize for the student with the best personal, scholastic and sports record during the BDS course.

During those University days, he was active in University theatre, performing under the direction of John Sumner and George Fairfax. He competed in A grade athletics and football with the Old Melburnians.

In his final year, Dr Hall's interest in cleft lip and palate was already established, and he did extra work in this area, making obturators with Dr Clive Dennis. He also started his writing career with two papers which were later published. He graduated in 1956 with BDS second class honors, and then completed his Master's degree in Prosthetics at the same institution in 1962. His initial clinical work in the Children's Hospital, was at the Orthopedic Section, Mt Eliza. This opened his eyes to the needs and possibilities, as many children were long term cases, resident in the Hospital for two or three years, and had received no dental care for five years.

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Coming Events

15-18 February 1999

6th International Congress on Oral Cancer.
New Deli, India

19-21 March 1999

10th International Conference on Dental Traumatology
Melbourne, Australia
Contact: PR Conference Consultants,
113 Whitehorse Road,
Balwyn Victoria 3103 Australia

2-4 September 1999

17th Congress of the International Association of Paediatric Dentistry
London, UK

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President's Report



Dear Members welcome to our last edition of Synopses for this year. Nationally, we have now re-elected the Coalition Government and given the lack of any dental policy during the election we can expect very little change in the public dental activities of the Federal Government. On a state level the Victorian enquiry is into the final throws of report making and we await the outcome of their deliberations with great interest. In the general news we have seen the attractive dentition of a leading ballerina generate much attention, the erosive effects of powdered asthma medication achieve notice, to cite only two examples. But dentistry although important to the general public rarely gets a serious look in with government. We do have a very active and productive ADA at federal & state levels and yet dentistry so often seems to be outside looking in. The problem seems to stem from the training paths and institutions that have kept medicine and dentistry divorced. Only with the full integration of dental training into medicine for both postgraduate and undergraduate, will the mind set change, and oral health care be seen in its totality, as an important part of the jigsaw of total health for all individuals. It is pleasing to note that there is change in the wind, which goes well for our profession & specialty.

The status of our next Society meeting in Adelaide has been causing the Executives some concern and at the time of press it appears that the meeting will be going ahead in Adelaide although his has not been absolutely confirmed. Our colleagues in South Australia realise the undertaking in organising a Congress. They are presently putting a committee together, who are committed to making the Congress as good as it possibly can be. If the Congress is unable to be a go ahead in Adelaide other plans of course will need to be made fairly soon.

My plans for a special meeting in May between the Academy and the Society to be held in Adelaide are now beginning to take shape. As mentioned in my previous editorial it is planned at this meeting to start developing standards of care for both the Academy and the Society. I believe this is a very important step for our Society and I look forward to the change to share our meeting with members of the Academy so as to develop the most up to date and appropriate standards of care for Australian Paediatric Dentistry that we can.

Of particular interest in the last few weeks has been the letter from the ADC Post-

graduate Accreditation Committee under the Chairmanship of Professor Greg Seymour. His letter outlines the committee's intention to accredit postgraduate programs within Australian University Dental Schools, which lead to specialist registration. He has requested that all interested parties to make submissions. This is a most important move & the Committee will focus on the educational process employed by each University rather than the content of individual programs. With respect to the latter however the Sub-Committee will seek evidence from each University that it has in place a mechanism for evaluation of the content.

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and productive ADA at
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The information age

As I slowly try and evolve myself into a computer literate animal there is one aspect of the process which I would encourage you all to take up. Listserv's dental e-mail discussion group is a most interesting forum for discussion and ideas and also provides some interesting information on web sites that colleagues have located around the world and have found interesting. It can of course become totally obsessive once the toe is dipped. However it is very stimulating. Some very good contributions are made in response to various queries by practitioners from all around the country. I would suggest you contact the Mark Cordato on email ozdent@ix.net.au.

I wish you all a very safe end to 1998 and would like to again thank Colgate for their ever generous support of Paediatric Dentistry in Australia & New Zealand, in many different forums but particularly this newsletter.

Richard Widmer
President, ANZSPD

Federal Secretary-Manager's Report

For a start, a number of matters for our Australian members - if the New Zealanders will bear with us for a moment.

The Federal A.D.A. Schedule Committee has been busy revising "An Australian Schedule of Dental Services and Glossary", and the 6th Edition of this will be published in the near future. The Schedule Committee sought a wide range of views from a wide range of bodies, including A.N.Z.S.P.D. All branches were consulted and a submission presented based on the returns received. The major changes involve a considerable reduction in the number of items, e.g. all tooth coloured adhesive restorations being covered by just a couple of numbers.

The Federal A.D.A. plans to reduce the number of standing committees, with committees such as Dental Health Services, Dental Practice, Education and Legislation being abolished or absorbed into other committees. The Dental Auxiliaries, Constitution, Infection Control, Oral Health Education, Schedule and T.I.M.E. (Therapeutics, Instruments, Materials and Equipment) committees will continue.

The 1998 A.D.A. Members Directory is due for release soon. The A.D.A. has advised this publication will not include the usual lists of Societies members, including A.N.Z.S.P.D. It is the plan of A.N.Z.S.P.D. to send a copy of our members list to all our members.

The winner of the 1998 Post-graduate Essay Competition is Nina Vasan, now of Melbourne (ex New Zealand); the topic was: Discuss paediatric sports dentistry, with particular reference to sports diets, injuries and sporting habits. Her essay will be published in Synopses.

Members may be aware A.N.Z.S.P.D. was bidding to host the 2003 International Association of Paediatric Dentistry Congress in Sydney. The bid was unsuccessful, with the Congress being awarded to New Orleans. The Federal Council will now consider whether to bid for the 2005 Congress.

The next A.N.Z.S.P.D. Federal Convention, the 12th, is due to be held in Adelaide on the 24th and 25th February 2000. The South Australian Branch is regrouping after being dormant for a little while. At the moment, the branch is considering whether the conducting of a Federal Convention is a little too demanding for them at this stage of their revival.

Concern has been expressed in some paediatric dental circles at the decision of the Wyeth Company to release a version of their S26 Toddlers Milk Drink which is Chocolate (Vanilla) Flavoured. Individuals have registered their disapproval at this decision. Federal Council will decide in due course whether to do likewise.

Alistair Devlin
Federal Secretary- Manager's ANZSPD

Branch News

Western Australia

1. The 1998 Mid-Winter Meeting was held in Yallingup, in the south-west of the state, in July. Once again, the chosen venue was the historic Caves House. The format was varied slightly this year, with the Friday afternoon being devoted to the "Pot Pourri", where members make short discussion-provoking presentations. On the Saturday morning, the guest speaker was the well known Sports Dietitian and Nutrition Consultant, Glen Cardwell. His presentation was a follow on to the 1997 lecture by Deborah Kerr "Snack Pack. Acid Attack", and it explored a wide range of matters relating to diet. These included a number related to dentistry, e.g. sports drinks, misleading labels, etc., but there were a number of others of general interest. The highlight of the meeting, however, was the announcement at the dinner held on the Friday night, of the engagement of our member, Jane McCarthy, to Ulrich Seydel. It was a very happy occasion!

2. The next meeting is to be a full day course conducted in conjunction with the Dental Therapy and Hygiene Association (W.A.) This meeting, entitled "Kids Teeth: Lets Get it Right" will be held at the Hyatt Hotel in Perth on 16th October. It will feature seven speakers, and at the time of writing, was proving to be very popular, with almost 250 enrolled to attend.

3. The final meeting of the year will be the Annual General Meeting and Dinner. This will be held on Friday, 27th November 1998 at the Sebel of Perth Hotel. The guest speaker on this occasion will be Dr Dick Cook. Dick was the Chairman of the 1998 Perth Australian Dental Association Congress Organising Committee, and he will be speaking about European Theatres of War, particularly from World War 1. He has a particular interest in these, and has visited many of them more than once.

Alistair Devlin

Victoria

The vibrant Victorians have had another entertaining and thought provoking year with well-attended meetings and a conference in honour of Roger Hall OAM, Director of the Department of Dentistry at the Royal Children's Hospital of Melbourne and a founder of our Society. To the

Rogernomics of New Zealand we can now add the Rogerdantics of Victoria.

The conference was held on September 10 and 11 and surpassed the organizing committee's hopes in attendance, quality of speakers and (praise be) profit. The only negative in this exercise was frustration in the operation of twin slide projector controls. The support of Colgate by promoting the conference, and its allied conferences in Adelaide and Brisbane, and in covering the travel costs of main speaker, Edwina Kidd, is warmly appreciated and gratefully acknowledged.

The theme was dental caries, its origins, processes and management. The several speakers came from Victoria, interstate and overseas. From the infectious enthusiasm of Professor Laurence Walsh of Brisbane, to the piercing clarity of Edwina Kidd, Professor of Cariology at Guy's and St. Thomas's Dental School, to the simple elegance of Nina Vasan's research project, all made a positive contribution to the rich mosaic which was the conference.

The main speakers, Kidd, Walsh and Professor Roland Bryant of Sydney, provided both plenty to think about and take back to use in everyday practice. However no less solid was the supporting cast who reinforced the notion, if it needs reinforcing, that Australia has highly talented, if under-resourced dental academics. Further, there was not a whiff of bullshit for the whole two days.



In reducing the content of a conference to a few sentences there is a danger of misrepresentation. Nevertheless we learned that the management of dental caries is complex and consists of more than picking up a handpiece, that Edwina Kidd fell in love with Mike Morgan when he decried the use of the term "fluoride bomb" as it gave fluoride a bad press, that lasers are good but air abrasion is questionable at best, that total etch has too often meant total disaster, that GIC does not a dovetail make, that dentine dying is a worse than useless exercise as it leads to the removal of uninfected tissue, and that we dismiss at our peril the philosophy and approach of GV Black.

And where was Roger Hall in all of this? He was his urbane and affable self and he had returned from the University of Strasbourg especially for the occasion. Roger spoke twice. The first time was a reflection on his department at RCHM; its staff, visitors (and there have been many), development and achievements (again, many). The second time was in reply to a toast/roast by Professor Richard Widmer at the end-of-conference dinner. Roger, as usual, got in the last word. Paediatric dentistry in Australia owes much to his vision and dynamism. The conference was a fitting tribute to the man.



Speakers and ANZSPD Vic Branch Committee. (Back row) John Wilde, Roland Bryant, Felicity Wardlaw, John Sheehan, Sonny Stepley and Nicky Kilpatrick. (Front row) Kari Storhaug (Norway), Rodger Hall, Edwina Kidd, Eda Franco and Karen Kan.

Encomium...from page 3

Development of the Dental Dept at RCH and anecdotes

In 1959 Dr Hall traveled to England, which was then a pleasant sea voyage of about a month's duration, and he studied Pediatric Dentistry and Oral Surgery at the London University Postgraduate Institute (1959-60). He practiced in a number of UK hospitals, getting excellent experience in oral surgery and in the relatively new field of restorative dentistry for children under general anesthesia. Mid studies, he received an exciting telegram (for our younger audience, that was an early version of the email) from Professor Henry Atkinson, inviting him to return to Melbourne to take up the new appointment of full-time Pediatric Dentist at the Children's Hospital. And this he was very pleased to do in 1960.

Dr Ailsa Hyland, who was an Orthodontist in the Department for about twenty years, recalls that one of Dr Hall's major struggles and accomplishments in those early days was to establish status and respect for dentistry in a pediatric medical hospital. She says that he "sailed through like a battleship for dentistry, and won", gradually gaining space, recognition and status, and disseminating the knowledge he acquired on overseas sabbaticals.

In the early 1970's, in the era preceding community water fluoridation, dental caries was a tremendous problem for children, and especially for those with medical conditions. With the assistance of Dr John Brownbill, Dr Hall set up a preventive program, particularly for rural children, using diet control, oral hygiene and fluoride applications.

In 1967 Dr Hall became Director of the then-small Department of Pediatric Dentistry. When Margaret Moscop started as secretary in the Department in 1982, she recalls that "Dr Hall was the Department", because the staff comprised only himself, several sessional dentists, and three nurses. Under his direction and wisdom it has flourished to the active and large department we know today, providing specialist dental care for children with medical disorders, and with more than thirty staff involved and a wide range of specialties represented. His contribution has greatly improved dental care for high risk, disabled children over the past thirty years. Rick Widmer recalls fondly his own student days with Dr Hall in the Department in the late 1970's. On their first visit to the Department as final year dental students, Rick and Jamie Lucas had the effrontery to be the only students to show up not wearing ties. Dr Hall immediately tossed them out of clinic, and they had to sneak quietly to the charge nurse who kept a few ties hidden for the purpose. Needless to say, when Rick and Jamie reappeared a few years later as graduate students in fear and trepidation, they were dressed in true sartorial elegance.



(left to right) Mr and Mrs Hall and the Inaugural RK Hall Visiting Lecturer, Edwina Kidd.

Tissa Jayasekara recalls from his graduate student days the excitement of the first secondary alveolar bone graft in a cleft lip cleft palate patient, done in 1983 by Dr Hall in conjunction with Dr Bruce Levant and senior plastic surgeon, Dr John Barnett.

Tissa also recalls Dr Hall's absolute glee in taking the graduate students to task when they were totally mystified by their first case of "Mono-supero-centro-incisivo-dontic dwarfism". Now, who could not be aware of the solitary incisor syndrome? Tissa then became such a devotee of his teacher that he was dubbed the nickname "Son of Roger".

Contributions

a. Academic interests:

Dr Hall's career has shown boundless energy, enthusiasm and determination on many frontiers. He was determined to collect the best of overseas knowledge and techniques and bring them to the Royal Children's Hospital to be used in Australia. His broad based training in prosthetics, oral surgery and pediatric dentistry ensured he was in a good position to evaluate new developments overseas.

His main areas of interest, research and expertise have been and continue to be in orofacial trauma, developmental defects of teeth, oral medicine, syndromes and syndrome identification, and temporomandibular joint abnormalities in children and adolescents. Dr Eda Franco describes his ability to diagnose a very rare syndrome which had stumped even the genetics people. It was a family of five children, with Kohlschutter's syndrome, where amelogenesis imperfecta is associated with progressive mental deterioration. His knowledge of children with syndromes and associated medical anomalies I would sug-

gest is unsurpassed in Australian dentistry today.

He is a frequent lecturer on these topics both nationally and internationally and has been an invited speaker at over 40 professional meetings.

b. Publications:

A prolific author and communicator of his knowledge, Dr Hall is on the Editorial Board of the International Journal of Pediatric Dentistry, and he has published over 70 papers, abstracts, book reviews and chapters.

We are very grateful indeed that Dr Hall is leaving us with an outstanding legacy of his life and work, so that his monumental contribution will live on into the next and later generations. I refer of course to his textbook, Pediatric Orofacial Medicine and Pathology. I think the most fitting accolade to this work was written by Dr Jens Pindborg. In his 1993 Foreword to the book, Dr Pindborg said that, and I quote, "It is no exaggeration to state that the book is absolutely unique... A comprehensive treatise on syndromes, caries and periodontal diseases in children has been sorely missing, and this gap has now been filled by Dr Hall's magnificent contribution. Every pedodontist will, in this book, be able to find the desired information on any oral disease found in children from the rarest syndrome through to dental caries... For many years to come, Dr Hall's book will be the source to be consulted by pedodontists whenever they are in doubt. It should be available in every dental clinic dealing with children". (end of quote).

It is now four years since the book was published, and it certainly has become a constantly cited work in the field and a daily source of reference for many clinicians round

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the world in pediatric dentistry.

c. Committees:

Dr Hall's academic appointments include Senior Associate in Pediatric Dentistry and Preventive Dentistry at The University of Melbourne which has been continuous since 1958, and part-time Research Fellow of the Royal Children's Hospital Research Foundation.

He is a member of the Board of Studies in Pediatric Dentistry, Royal Australasian College of Dental Surgeons. He has served as Examiner for the Royal Australasian College and for the Universities of Sydney, Hong Kong and Strasbourg.

Dr Hall's achievements in local, Australian and international spheres of Pediatric Dentistry have been extensive, and his service to the wider dental profession has been outstanding. His activities have helped establish Pediatric Dentistry as a specialty in Victoria and advanced the specialty both nationally and internationally, and through his travels and presentations he has promoted the international exchange of young academics, researchers and clinicians. The attendance at this Conference today is evidence of this.

He was President of the International Association of Dentistry for Children (now the International Association of Pediatric Dentistry) from 1985 to 1987, and was Chairman of the Ninth Congress of the International Association of Dentistry for Children held in Melbourne in 1983. More recently, he was awarded Honorary Life Membership of this Association in 1993.

He was Foundation President of the Australasian Society of Dentistry for Children (now the Australian and New Zealand Society of Pediatric Dentistry), the inauguration of which, 25 years ago, we are celebrating with this special Conference today.

From 1975 to 1991, Dr Hall was Councillor for the International Association of Dentistry for the Handicapped. From 1990 to 1995, he was Foundation President of the Australasian Academy of Pediatric Dentistry, and is currently the Immediate Past President.

Honors

In 1988 he was elected Fellow of the International College of Dental Surgeons.

A most fitting tribute to Roger's lifetime contributions to pediatric dentistry came in January, 1996, when he was awarded the Medal in the Order of Australia. The citation for this honor reads: "To Dr Roger Kingsley Hall, for Services to Pediatric Dentistry".

Personal strengths

One of Dr Hall's most appreciated qualities is his expertise as a diagnostic consultant and his unfailingly kind and prompt response to any consultative request, from both clinicians and families alike. We will all miss tremendously his

mental library in Pediatric Oral Pathology and Medicine... Rick Widmer calls it his "Encyclopedia Hallica", which has provided such ready reference for many colleagues faced with unusual conditions and baffling anomalies over many years.

He continues with an open mind, ever ready to learn from others. Many past students have commented that, no matter how obnoxious their behaviour may have been at the time, Dr Hall never bore a grudge about it. Students are never belittled for their lack of knowledge and he can disagree with you most politely, by saying something like "I would have thought that." or similar. From my own perspective at the Dental School, I hope he will continue to be available to teach our students.

On a personal level, Dr Hall is a very warm and most personable individual, with broad interests in drama, the arts, music and architecture. His love of Paris and Provence, France is legendary.

Personal and social contacts with him are a pleasure. Jamie Lucas recalls many occasions when Dr Hall showed himself a connoisseur of good food and fine wines. According to Jamie, "if you eat out with Roger it will likely be at the best restaurant in town".

Advice to new graduates

A father of five very successful children himself, he has been a significant mentor to many students, both in Australia and overseas, and he will go to any length to encourage earnest students to develop their careers.

I took the opportunity recently to ask him what advice he would have for new graduates. And he gave me two pieces of sage advice. Firstly, he recommends new graduates have a double interest, not just a single focus, for example an interest in both research and pediatric dentistry, or a second interest within pediatric dentistry. And secondly, he recommends the new graduate take the time to still do an apprenticeship, that is, work alongside someone experienced and take time to observe their skills.

Closing comment

In closing, Roger, your professional colleagues and friends salute you. The Australian and New Zealand Society of Pediatric Dentistry extends its warm and heartfelt congratulations. In 1997 the Society recognized your contribution by establishing the International lectureship, to be known as the Roger K Hall Visiting Lecturer. During this Conference we will hear presentations by the first of such Roger K Hall Visiting Lecturers.

There is an old French saying or proverb which does not have an English equivalent, but roughly translated it means "to take on the impossible". Literally, "you have truly taken the moon with your teeth"... "Tu as pris la lune avec tes dents". Merci beaucoup.

An Uncooperative Child?

Peter Milgrom

Liability claims against dentists restraining uncooperative children are on the increase. Often, this occurs as a result of an emergency visit when there had been little opportunity to establish rapport with the child or the family and gain informed consent. Without a parent present in the dental operatory, treatment may have been undertaken even though the child was upset.

No child should ever be separated from a parent during an emergency visit or when the child is in pain. Neither should they be separated when either the child wants the parent there, or the parent does not wish to be excluded. An attempt to separate the parent and child usually results in loss of rapport and mistrust.

If the child is upset and in pain, ask yourself how important it is to attempt invasive treatment right then. Consider the use of antibiotics and analgesics if the child has a tooth abscess, gum boil, or facial swelling. Proceeding with treatment in the presence of pain almost always results in more pain and upset. Children who actively resist treatment create a dangerous situation where they can be injured. Such children may have had very little regular care prior to this emergency and need careful introduction to the dental environment before proceeding with any treatment. Buying some time by using analgesics and antibiotics may allow you to get to know the child and family. Attentive follow-up is essential.

Once treatment begins, scrupulous attention to pain control is essential. Older textbooks and articles often recommend very low doses of local anaesthetic. Children, though, may require larger doses. This is especially true when infection is present or when a pulpotomy is anticipated.

Usually, children want to cooperate with the dentist, but a fearful child may need several visits to be able to tolerate treatment. Play with the child. Engage the child in a game. Reinforce cooperative behaviour and show that you are a friend. Teach the child to be a helper. Only then attempt to introduce dental stimuli in a step-wise fashion. Don't overdo explanation, and don't attempt to distract an over vigilant child. Rather, provide a mirror so the child can watch. Remember, every child has good days and bad days, and behaviour at today's appointment may not necessarily predict behaviour next time. If the child has difficulty, request a simpler behaviour, praise his or her cooperation and reschedule. Seek specialty consultation if needed.

Pulp Therapy for Deciduous Teeth

Winning Essay

ANZSPD 1997 Post-Graduate Essay Competition

Dr Mala Desai

Post Graduate Student in MDS Paediatric Dentistry at University of Melbourne, 1996-97

Presented at the 11th Biennial Meeting ANZSPD, Sydney, Australia

Topic: "Outline the techniques available to treat the diseased pulp of a deciduous tooth. Discuss the indications for applying the techniques mentioned and the success rates likely to be achieved."

Introduction

Despite modern advances in the prevention of dental caries and an increased understanding of the importance of maintaining the natural dentition, many teeth are still lost prematurely. This can lead to malocclusion, or to aesthetic, phonetic or functional problems that may be transient or permanent in nature.¹⁻⁴ The principal goal of paediatric operative dentistry is to prevent the extension of dental disease and to restore damaged teeth to healthy function.² In pursuit of this goal a range of conservative endodontic procedures have developed which are able to provide predictable alternatives to extraction for many pulpally compromised deciduous teeth, thereby maintaining the integrity of the dental arch.^{2,4-7}

Various techniques are available to treat the diseased pulp of a deciduous tooth. Treatment options can essentially be classified into two categories, depending on the vitality status of the pulp:^{1,4,8}

- Conservative or vital pulp therapy (indirect pulp capping, direct pulp capping, pulpotomy).
- Radical or non-vital pulp therapy (pulpectomy).

For all endodontic interventions from indirect pulp capping to non-vital pulp therapy, careful case selection, and control of microbial infection are the key determinants of success.² The object of this essay is to outline the basis for the different forms of pulp therapy and discuss the indications, contraindications, materials, clinical procedures and prognosis for the techniques available.

Diagnosis

A tooth can have reversible or irreversible pulp pathosis.⁶ McDonald and Avery⁹ have outlined several diagnostic aids in the selection of teeth for vital pulp therapy, whilst others have emphasised that no single diagnostic means can be relied upon for determining a diagnosis of pulp conditions.^{10,11} The deciduous pulp

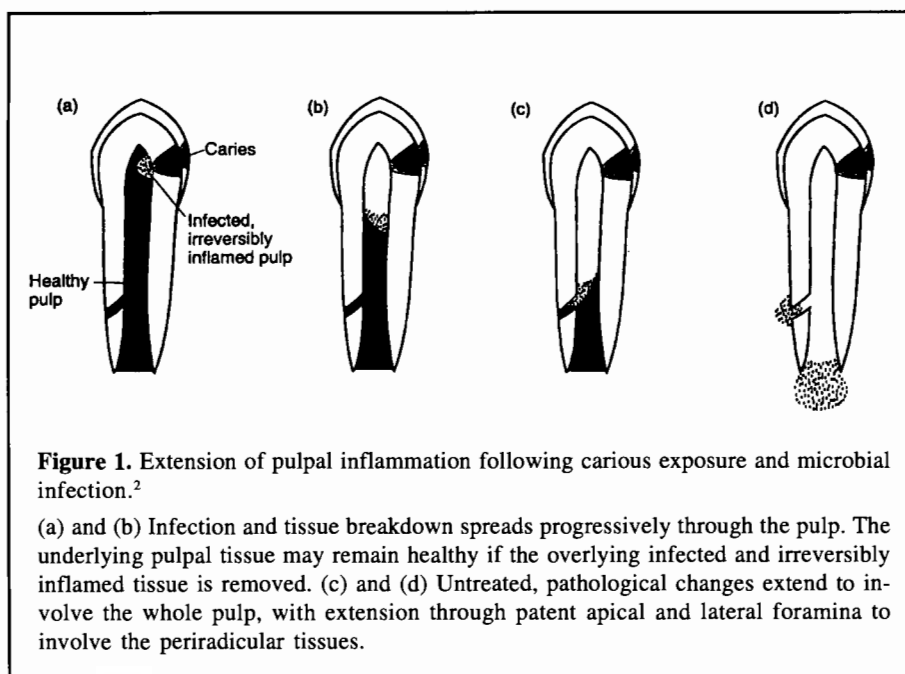


Figure 1. Extension of pulp inflammation following carious exposure and microbial infection.²

(a) and (b) Infection and tissue breakdown spreads progressively through the pulp. The underlying pulp tissue may remain healthy if the overlying infected and irreversibly inflamed tissue is removed. (c) and (d) Untreated, pathological changes extend to involve the whole pulp, with extension through patent apical and lateral foramina to involve the periradicular tissues.

responds more rapidly to the effects of dentine caries than the permanent pulp.¹² Yet, importantly enough, Taylor¹³ concluded that in spite of the fact that pulps of deciduous teeth may be ultimately inflamed and infected by the carious process, deciduous molars are capable of marked defence reactions similar to those observed in permanent teeth. (See Figure 1)

The most important and also the most difficult aspect of pulp therapy is determining the health status of the pulp, or its stage of inflammation, so that an intelligent decision can be made regarding the best form of treatment.^{2,6} Appropriate pulp therapy is selected upon the acquisition and analysis of appropriate diagnostic data. This should include complete medical and dental histories, a thorough clinical examination, and radiographic assessment. Additional tests such as palpation, percussion, and mobility should also be performed. Selection of the appropriate treatment for a tooth is essential to its long term prognosis.¹⁻⁸

Indirect Pulp Capping

Rationale

Since Black's time, many histologic and bacteriological studies have shown the true nature of the carious process and the response of the dentine and pulp to infection. Indirect pulp therapy allows the tooth to utilise the natural protective mechanisms of the pulp against caries.⁵ It is based on the theory that a zone of affected demineralised dentine exists between the outer infected layer of dentine and the pulp.¹⁴ This 'calciotraumatic' zone forms a boundary that cannot be penetrated by irritants, thereby protecting the pulp.¹⁴ When the infected dentine is removed, the affected dentine can remineralise and the odontoblasts form reparative dentine, thus avoiding a pulp exposure.^{5,15}

Indirect pulp capping has been defined as a procedure wherein a small amount of carious dentine is retained in deep areas of cavity preparation to avoid exposure of the pulp.⁶

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A medicament is then sealed over the carious dentin to stimulate and encourage pulp recovery.⁶ It is understood that, at a subsequent time, the cavity will be re-entered, the carious material removed, and the tooth restored.⁶

Indications

The decision to perform indirect pulp capping on a particular tooth is based on the findings listed below:⁵⁻⁸

1. History
 - (a) Tolerable dull, mild discomfort associated with eating
 - (b) Negative history of spontaneous extreme pain
2. Clinical Examination
 - (a) Large carious lesion
 - (b) Normal mobility
 - (c) Normal appearance of adjacent gingiva
 - (d) Normal colour of tooth
3. Radiographic Examination
 - (a) Large carious lesion with a possibility of a carious pulp exposure
 - (b) Normal lamina dura
 - (c) Normal periodontal ligament space
 - (d) No radiolucency in the bone about the apices of the roots or in the furcation

Contraindications

Findings that contraindicate indirect pulp capping are as follows:^{5,6}

1. History
 - (a) Sharp penetrating odontalgia indicating acute pulp inflammation and/or necrosis
 - (b) Prolonged nocturnal pain
2. Clinical Examination
 - (a) Mobility of the tooth
 - (b) Parulis in the gingiva approximating the roots of the tooth
 - (c) Negative reaction to electric pulp testing
 - (d) Discolouration of the tooth
3. Radiographic Examination
 - (a) Large carious lesion producing definite pulp exposure
 - (b) Interrupted or broken lamina dura
 - (c) Widened periodontal ligament space
 - (d) Radiolucency in the bone about the apices of the roots or in the furcation

Materials and Clinical Technique

A commercial hard set calcium hydroxide or a fast-setting zinc oxide eugenol (ZOE) cement are the materials most commonly used to cover the potentially exposed site.^{5,6,16,17} Studies have shown both materials to be equally effective, with virtually all bacteria being destroyed under calcium hydroxide and ZOE sedative dressings sealed in deep carious lesions.^{16,17}

The indirect pulp capping technique is outlined in Figure 2.

Prognosis

Indirect pulp capping is considered successful when:⁸

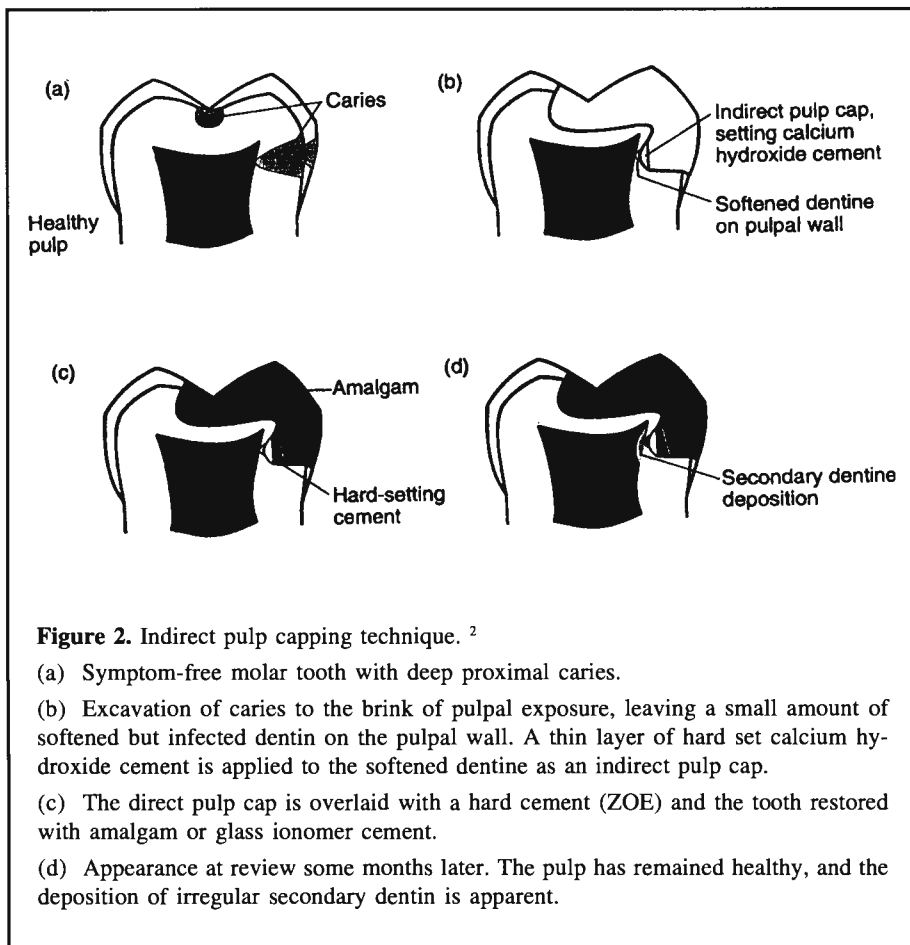


Figure 2. Indirect pulp capping technique.²

- (a) Symptom-free molar tooth with deep proximal caries.
- (b) Excavation of caries to the brink of pulp exposure, leaving a small amount of softened but infected dentin on the pulpal wall. A thin layer of hard set calcium hydroxide cement is applied to the softened dentine as an indirect pulp cap.
- (c) The direct pulp cap is overlaid with a hard cement (ZOE) and the tooth restored with amalgam or glass ionomer cement.
- (d) Appearance at review some months later. The pulp has remained healthy, and the deposition of irregular secondary dentin is apparent.

- Restorative material has completely sealed off involved dentin from oral environment.
- Vitality of pulp is preserved.
- Prolonged post-treatment signs or symptoms of sensitivity, pain, or swelling are alleviated.
- Pulp responds favourably and tertiary dentin is formed, as evaluated radiographically.
- There is no radiographic evidence of internal resorption or other pathologic changes. Reported success rates range from 73 to 99 percent.^{5,6} One may question the need to re-enter the tooth if it has been properly selected and monitored; particularly if a durable restoration is placed initially, and if no adverse symptoms develop.^{5,6,18} Long-term clinical and histologic studies are presently being carried out to determine if reentry of treated teeth is necessary.

Direct Pulp Capping

Rationale

Direct pulp capping is defined as the placement of a medicament or dressing on a pulp exposure (carious, traumatic or mechanical) in an attempt to preserve vitality.^{6-8,19} The rationale behind this treatment modality is the encouragement of young healthy pulps to initiate a dentin bridge, hence "walling off" the exposure site.^{6,7}

Indications

Direct pulp capping is generally contraindicated for deciduous teeth due to reported low success rates.^{2,5-8} This controversial technique is only recommended for small mechanical or traumatic exposures in deciduous teeth when conditions for a favourable response are optimal.⁸ Selection criteria for this procedure are rigid, as outlined below:^{5-8,19}

1. History
 - (a) A preoperative diagnosis of pulpal health should dictate the optimal treatment
 - (b) Absence of pain
2. Clinical Examination
 - (a) Small exposure size ie. less than 1.0 mm
 - (b) Minimal or no bleeding at the exposure site
 - (c) Minimal or no inflammation within the pulp and/or infection due to caries or trauma

Contraindications

Direct pulp capping of a carious pulp exposure in a primary tooth is not recommended.⁸ Other contraindications to direct pulp capping are as follows:^{5-7,19}

1. History
 - (a) Severe nocturnal toothache
 - (b) Spontaneous pain
2. Clinical Examination
 - (a) Tooth mobility

Continued page 8

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- (b) Excessive bleeding at exposure site
- (c) Purulent or serous exudate from the exposure

3. Radiographic Examination

- (a) Thickening of the periodontal membrane
- (b) Intraradicular radiolucency

Materials and Clinical Technique

The purpose of the pulp capping material is to protect the pulp from additional injury and permit healing and repair.^{19,20} Many different materials and medicaments have been employed as pulp capping agents.^{7,19} Various corticosteroid and antibiotic medicaments have been suggested for direct pulp capping, to prevent or reduce pain, either to be used alone or combined with calcium hydroxide.⁷ However, a hard set calcium hydroxide cement is the most widely recommended for this technique; it is generally placed directly over the exposure with a fast-setting ZOE cement placed over the calcium hydroxide to achieve a hermetic seal.^{5,7,20}

Prognosis

Although the reported success rates for direct pulp capping in young permanent teeth are high, this technique has been found to be less successful in deciduous teeth than indirect pulp capping or pulpotomy.^{6,7} Much of the classic research on pulp capping has been done on teeth where trauma has occurred exposing uninfamed, uninfected pulps. Although it has been found that capping the mechanically exposed pulp can be very successful and predictable, capping of the carious exposure remains controversial.²¹ In carious exposures, the pulp is almost certain to be inflamed, and the condition may be aggravated by restorative endeavours because pulpal injury is cumulative and such damage may be irreparable. The central problem is clinically distinguishing between reversible and irreversible pulpitis, as several authors have shown that clinical evaluation correlates poorly with the histologic state of the pulp.^{22,23} The salient features of successful direct pulp capping are:^{6-8,19}

- Dentin bridging
- Maintenance of pulp vitality
- Lack of sensitivity or pain
- Minimum pulpal inflammatory response
- The ability of the pulp to maintain itself without progressive degeneration
- Lack of internal resorption and/or intraradicular pathosis

Even after extensive research in this area, the definition of success in direct pulp capping by the presence of a dentin bridge is still controversial.^{6,7,18} Studies have demonstrated that a healthy pulp can exist beneath a direct pulp capping, even without a dentin bridge.¹⁸ Other researchers have shown that a dentin bridge is often not as complete as it may ap-

pear, and this condition can result in eventual pulp degeneration.¹⁸

Pulpotomy**Rationale**

The pulpotomy has become the most widely accepted procedure for treating primary teeth with carious or traumatic pulp exposures.^{2-7,24} The essential difference between pulp capping and pulpotomy, is that in the latter procedure, additional tissue is removed from the exposed pulp. The pulpotomy procedure involves the amputation of the coronal portion of the affected or infected pulp, whilst preserving the vitality and function of all or part of the remaining radicular portion of the pulp.⁸

Indications

The pulpotomy procedure is indicated for:^{1,3-7}

- A vital pulp exposure on a restorable primary tooth in which the inflammation and/or infection is confined to the coronal pulp. If inflammation has spread into the tissues within the root canals, the tooth should be considered a candidate for pulpectomy or extraction.
- A large carious lesion with substantial loss (one third or more) of the marginal ridge in an otherwise restorable tooth.
- A patient for whom extraction or invasive pulp therapy of the primary tooth is contraindicated eg. haemophilic.

Contraindications

Contraindications for this technique are listed below:^{1,3-7}

1. Clinical History

- (a) Spontaneous or persistent nocturnal toothache
- (b) Tenderness to percussion or palpation

2. Clinical Examination

- (a) Non-restorable tooth
- (b) Tooth nearing exfoliation and/or permanent successor close to eruption
- (c) Pulp that does not haemorrhage i.e. necrotic pulp
- (d) Pulp with serous or purulent drainage
- (e) Inability to control haemorrhage following coronal pulp amputation
- (f) Pathologic mobility of the tooth g. Swelling (of pulpal origin)
- (g) Presence of an abscess or fistula

3. Radiographic Examination

- (a) Evidence of periapical or furcal pathology
- (b) Early or abnormal root resorption with two thirds or more roots resorbed ie. pathologic external root resorption
- (c) Internal root resorption
- (d) Radicular bone loss
- (e) Pulp calcifications

4. Medical Problems³

- (a) Patients with heart disease ie. those at risk for bacterial endocarditis
- (b) Immune compromised patients eg. those

with leukemia

Materials

Following coronal pulp amputation, the radicular pulp stumps are generally covered with a suitable medicament or dressing.^{1,4,6} This material should ideally be:^{1,4}

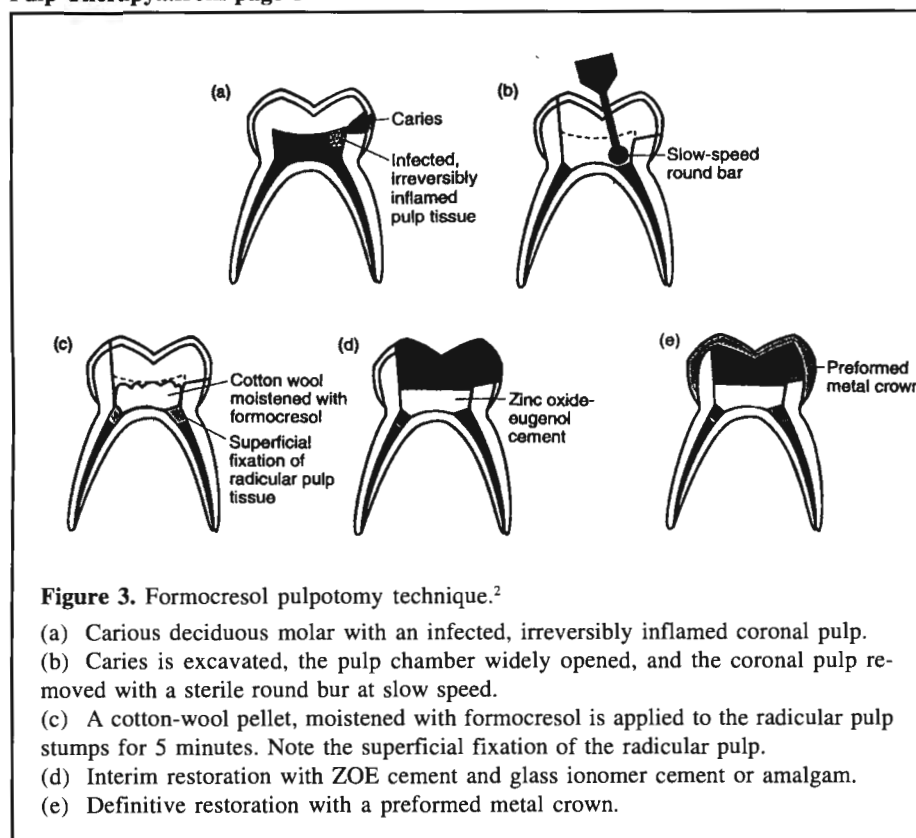
- Be bactericidal
- Be harmless to the pulp and surrounding structure
- Promote healing of the radicular pulp
- Not interfere with the physiologic process of root resorption

Although there has been much research in this area, the "ideal" pulp dressing material has not yet been identified.⁴ The most commonly used pulp dressing material for the pulpotomy procedure in primary teeth is formocresol.⁴ Although pulpotomy generally implies vital radicular pulp tissue, formocresol is used in an attempt to partially devitalize and fix the pulp in the root canal.^{1,6} Studies have found that most commercial preparations of formocresol (19% formaldehyde and 35% cresol) are stronger than necessary; it is therefore recommended that full strength preparations should be diluted 1:5 with a mixture of water and glycerin.^{2,3,24} The success rate of formocresol pulpotomies for posterior teeth ranges from 74 to 99 percent, although it decreases with time.^{1,3-6} Despite its excellent clinical success rate, the formocresol pulpotomy technique has come under close scrutiny because of safety considerations.²⁵⁻²⁹ Concerns regarding its systemic distribution and potential for toxicity, allogenicity, carcinogenicity, and mutagenicity have led to additional research investigations into possible alternatives.²⁵⁻³² Gluteraldehyde has recently been advocated as a superior pulpotomy agent to formocresol.^{25,29-33} However success rates (ranging from 51 to 78 percent)^{30,33,35} only comparable to formocresol have been reported in several studies; thus, despite its reported advantages over formocresol, gluteraldehyde has yet to find widespread use for pulpotomies in primary teeth.³ calcium hydroxide, which is used extensively for permanent teeth (eg. for the Cvek pulpotomy)³⁴, has been evaluated as a possible alternative to formocresol for deciduous teeth.^{3,4,24} However due to its low success rate (around 60 percent) the calcium hydroxide pulpotomy is not currently recommended for primary teeth.³ The most frequent cause of failure when calcium hydroxide is used is extensive internal resorption below the amputation site.^{3,24} It has been reported that the ability of calcium hydroxide to create dentin bridging is adversely affected by inflammation, and also that calcium hydroxide has no beneficial effect on the inflamed pulp.^{18,24,30,29,33,34}

Advantages of nonpharmacotherapeutic tech-

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niques (eg. electrosurgery or carbon dioxide laser therapy) include the lack of haemorrhage and less mechanical damage to the underlying pulp.^{5,28} However, even though convenient, performing electrosurgery does not preserve vital tissue.^{29,33,34} According to a recent retrospective study, the clinical and radiographic success rate for the electrosurgical pulpotomy was reported to be 94 percent; the authors commented that this was significantly higher than that obtained for the formocresol pulpotomy, when compared with a study of similar design.²⁸ Further long term, prospective clinical studies are now required to confirm these promising findings.²⁸

In a recent comprehensive review, Ranly classified the various modalities and materials used for pulpotomy therapy in deciduous teeth into 3 categories:³⁶

- Devitalization (mummification, cauterization): where the intent is to destroy vital tissue eg. formocresol and electrosurgery.
- Preservation (minimal devitalization, non-inductive): the retention of maximum vital tissue with no induction of reparative dentin e.g. glutaraldehyde and ferric sulfate.
- Regeneration (inductive, reparative): the stimulation of a dentin bridge e.g. calcium hydroxide and bone morphogenetic protein. Of the three categories, he suggested that regeneration was expected to develop the most rapidly in the future.³⁶ Advances in the field of bone morphogenetic proteins (BMP) have opened new vistas in pulp

therapy. Human BMP with dentinogenic properties are becoming available through recombinant technology. Ranly appropriately stated that we are now entering an era of pulpotomy therapy with healing as the guiding principle.³⁶

Clinical Technique

Despite much controversy, the formocresol pulpotomy continues to be the treatment of choice for primary teeth with vital carious exposures of the pulp.^{2,4,5} The current recommended technique is a modification of that reported by Sweet in 1930³⁷, although several alternatives to the traditional formocresol pulpotomy have been reported.^{24,36,38}

The technique for the formocresol pulpotomy is outlined in Figure 3.

Prognosis

Evidence of success in therapy includes:^{8,28}

- Vitality of the majority of the radicular pulp
- No prolonged adverse clinical signs or symptoms such as sensitivity, pain or swelling
- No radiographic evidence of internal resorption or abnormal canal calcification
- No breakdown of periradicular supporting tissues
- No harm to succedaneous teeth

Pulpotomy

Rationale

The pulpotomy technique was introduced in 1932 as a method for maintaining deciduous teeth that would otherwise be lost.¹ However

primary tooth pulpectomy has remained controversial for several reasons:^{1,18}

- Technical difficulty in properly defining the tortuous, ribbon-like complicated root canals
- Fear of damage to developing permanent tooth buds (eg. enamel hypoplasia)
- Problems with root canal filling materials
- Behaviour management problems found among the paediatric population

While magnifying these dangers, many authors have advocated extraction of the pulpally involved deciduous tooth and placement of a space maintainer.⁶ However, there is no better space maintainer than the primary tooth itself.⁶

The therapeutic goals of pulpectomy are to eliminate the necrotic pulp and the micro-organisms, and ensure the hermetic seal of the root canals so that the primary tooth can complete its function and be maintained until normal exfoliation takes place, but without harming either the succedaneous tooth, or the health of the patient.^{3,39,40}

Indications

According to the AAPD Guidelines,⁸ the pulpectomy is indicated in deciduous teeth with irreversible pulpitis or necrotic pulp tissue. Camp outlined a more comprehensive list of indications for the pulpectomy procedure in deciduous teeth:⁵

- Irreversible inflammation extending to the radicular pulp, but with roots and alveolar bone free of pathologic resorption.
- Deciduous teeth with necrotic pulps and minimal root resorption and/or bony destruction in the bifurcation.
- Pulpless deciduous teeth with abscesses.
- Pulpless deciduous teeth without permanent successors.
- Pulpless deciduous second molars before the eruption of the first permanent molar.
- Pulpless deciduous anterior teeth when speech, crowded arches, or aesthetics are a consideration.
- Pulpless deciduous molars supporting orthodontic appliances.
- Pulpless deciduous molars when arch length is deficient.
- Pulpless deciduous teeth when space maintainers or continued supervision are not feasible (eg. handicapped children).
- Pulpless deciduous molars next to the line of the palatal cleft.
- Pulpless deciduous teeth in haemophiliacs.

Contraindications

Contraindications to the pulpectomy in a deciduous tooth are:^{3, 6,40}

- A non-restorable crown

Continued page10

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- Periradicular involvement extending to the permanent tooth bud
- Pathologic resorption of at least one third of the root with a fistulous tract
- Excessive internal root resorption
- Mechanical or carious perforation of the floor of the pulp chamber
- The presence of a dentigerous or follicular cyst
- Patients with systemic illness eg. congenital or rheumatic heart disease, leukemia, or on long-term corticosteroid therapy

Materials

Developmental anatomic and physiologic differences between deciduous and permanent teeth call for differences in the criteria for root canal filling materials. The ideal root canal material for a deciduous tooth should have the following properties:^{4, 5, 40}

- Be harmless to the periapical tissues and to the permanent tooth germ
- Resorb at a similar rate as the primary root
- Resorb readily if pressed beyond the apex
- Fill the root canals easily
- Adhere to the walls
- Not shrink
- Be easily removed if necessary
- Be radiopaque
- Not discolour the tooth
- Not be soluble in water
- Not set to a hard mass, which could deflect an erupting tooth
- Be able to induce vital periapical tissue to seal the canal with calcified or connective tissue
- Have a stable disinfecting power

No material currently available meets all these criteria.^{1, 4} The use of gutta percha and silver points as primary root fillers is contraindicated.⁵ The filling materials most commonly used for primary pulp canals are ZOE paste, iodoform paste, and calcium hydroxide.^{1-4, 39-46}

ZOE is currently the most widely accepted filling material for primary teeth. However some of its reported disadvantages include the following:³⁹⁻⁴²

- It resorbs at a slower rate than the root of the primary tooth.
- It is irritating to the periapical tissues and may produce necrosis of bone and cementum; overfilling the root canals with ZOE generally causes a mild foreign body reaction.
- Underfilling is a relatively common finding when thick mixes of ZOE are used.
- The tough consistency of the ZOE paste seems to lead to reduced root resorption of the primary tooth.

The reported rates of success following the ZOE pulpectomy are high, ranging from 75 to 95 percent.^{3, 6, 42, 43} However there are few long term clinical studies of pulpectomy methods and outcomes of treatment in deciduous teeth, with most of the studies to date being based on clinical and radiographic findings.^{42, 43} Several authors have advocated the use of iodoform-containing pastes such as KRI paste and Maisto's paste.^{33, 44-46} The results of a retrospective study indicated that primary molar teeth filled with KRI paste had a significantly higher success rate (84%) compared to those filled with ZOE (65%).⁴⁰ The authors attributed their finding to differences in properties between the two materials. They also found that the overfilling (79%) versus underfilling (86%) success rates were similar for KRI paste whereas overfilling with ZOE resulted in a significantly lower success rate (41%).⁴⁰ calcium hydroxide is generally not used for pulpectomies in primary teeth. However, several clinical and histopathological investigations of a calcium hydroxide and iodoform mixture have been published, especially in the Japanese literature.^{1, 4} A recent case report study described calcium hydroxide paste as the filling material of choice when performing a primary tooth pulpectomy on a necrotic pulp.³⁹ Its simple application and subsequent good resorption during the eruption of the permanent tooth were factors contributing to this favourable outcome.^{39, 41}

Clinical Technique

Pulpectomy can be accomplished in either one or two visits depending on the clinical signs and symptoms present.¹⁻⁶ The technique for the pulpectomy is outlined in Figure 4.

A range of clinical opinions exist as to the best techniques and materials to use for pulpotomies and pulpectomies. This diversity of opinion is illustrated well by studies carried out by Kennedy (1986)⁴⁷ who described a two stage pulpotomy for non-vital deciduous molars and Yacobi et al (1991)⁴¹ who proposed that pulpectomies ought to replace pulpotomies to avoid the use of aldehyde pulpotomy agents altogether. Using their 'vital, partial pulpectomy' technique, the authors claimed an equivalent success rate to the formocresol pulpotomy after one year.⁴¹ A follow up study using the 'vital, partial pulpectomy' technique also showed promising results and further research on this technique is currently being pursued.⁴³

Prognosis

Desirable outcomes following successful pulpectomy are:⁸

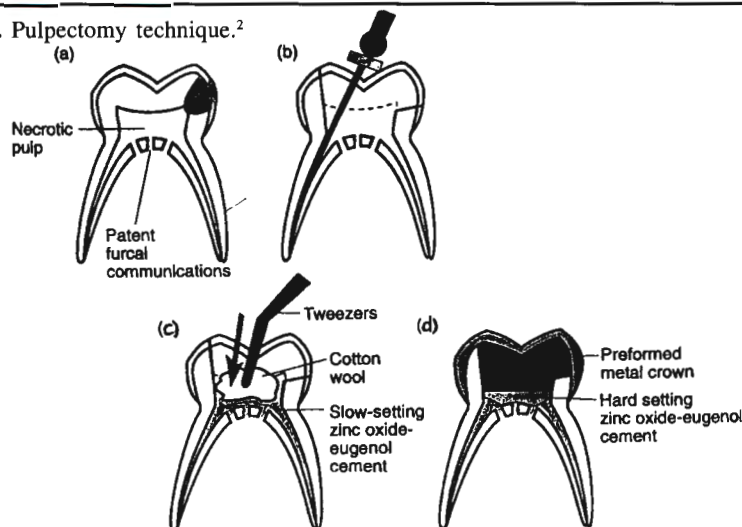
- Resolution of infection and adverse clinical and radiographic signs and symptoms.
- Radiographic evidence of successful filling without gross over-extension or underfilling.
- Resorption of primary root structures and filling materials occurring at an appropriate time, hence allowing normal eruption of the succedaneous tooth.
- The periradicular supporting tissue showing signs of healing.
- No evidence of pathologic resorption of the root canals.

Review

Deciduous teeth that have undergone pulp therapy should be reviewed both clinically

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Figure 4. Pulpectomy technique.²



(a) A carious, but restorable non-vital deciduous molar.

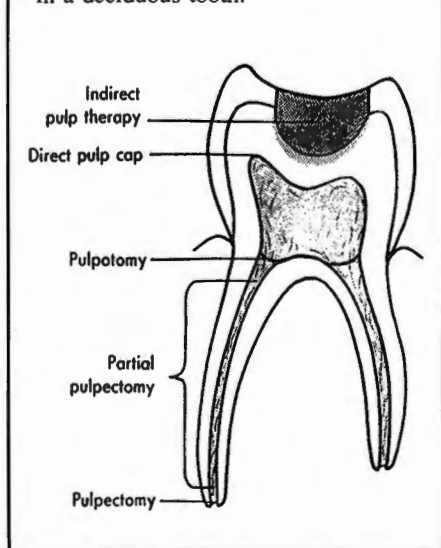
(b) Caries is eliminated and access made to the pulp. Gentle canal debridement is undertaken with small files and irrigation.

(c) After drying, a soft mixture of slow-setting ZOE cement is gently packed into the canals with a cotton wool pledget, lentulo spiral or paper points.

(d) The pulp chamber is packed with reinforced ZOE cement before definitive restoration of the tooth.

and radiographically at periodic (usually six monthly) follow up appointments.^{3,42} This will enable the clinician to: monitor the tooth and response of the periapical and furcal tissues, check for success of treatment, as well as to intercept any problem associated with a failure.^{3,42} Following failure of pulp capping or pulpotomy procedures, a decision should be made to either extract the tooth, perform a pulpectomy, or observe the tooth for a few months. In cases where there is evidence of pathosis following the pulpectomy technique, extraction and conventional space maintenance (if required) is generally recommended.^{3,42} The decision is based also on clinical considerations such as patient behaviour, symptoms, exfoliation schedule, eruption of permanent successor, and space requirements.^{2,3}

Figure 5. Progression of pulp therapy in a deciduous tooth.⁶



Conclusion

Careful respect for the dental pulp has been a primary precept of restorative care for children since the inception of such care. The quest for techniques for the prevention of pulp morbidity and for managing the diseased pulp continues. As newer restorative materials and methodologies appear, the need to assess their effect on the pulp demands our attention and our constant contact with the current literature in order to apply most aptly these techniques in our day-to-day patient care.⁴⁸

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Australia-Vietnam Dental Program 1998

A Report by Maria Chan

When I contacted Dr Jamie Robertson to volunteer my service for his Australia-Vietnam dental program, he was hesitant in accepting my offer. I understand he was looking for volunteer dentists with at least 4 years of experience, and that taking a dental student as a team member would mean extra responsibility for him. However, a BIG THANK YOU to Dr Kilpatrick for negotiating with and convincing Dr Robertson on my behalf. Somehow, a miracle has happened and Dr Robertson finally decided to take risks in accepting a student to join his team for the first time. "Worse comes to worse, at least my fluent Vietnamese could come in handy when the team needs an interpreter!", I convinced him.

So that's it, on the 3rd January 1998 I flew down to Melbourne to join all other team members to fly to Ho-Chi-Minh City (HCMC). I was ecstatic because it's a wish coming true for me. I finally am flying home for the first time in 10 years. I was not so excited about the thought of meeting my relatives as much as the thought of finally being able to offer my service to help my fellow beings who are less fortunate than myself, especially the children of Vietnam.

Participants:

Team leader: Dr J. Robertson
Dentists: Dr G. Burt, Dr J. Heap
Dr N. Hollander
Nurses: Fiona Pearce, Linda O'Brien
Jessica Leung
Hygienist: Jo Reeves
Myself Maria Tran who acts as: dentist, therapist, nurse and interpreter!
We also have 3 dental specialists: Dr R. Story, Dr L. Moloney, and Dr J. Lucas who have commitments at the Institute of Odontostomatology at HCMC and could not join us in the project at the districts of Long-Hai & Long-Dat.

Objectives:

1. To provide primary care to twelve year-old children.
2. To provide primary care to the orphans at Baria Orphanage.
3. To introduce a preventative strategy in primary schools by providing information and resource kits for teachers who then include dental health within the general curriculum.
4. To promote continuing education for local dental personnel.

Outcomes:

1. Primary care was given to children from grades 6 (eleven year-olds) from the surrounding schools of Long-Hai & Long-Dat districts. Opportunities were taken to give toothbrush instructions to groups of children while they were waiting in the clinic.
2. The children at Baria Orphanage (up to 17 years of age) were screened, the necessary primary oral care were given to those required.
3. Hygienist Jo and I visited four primary schools in the region. Total classes seen were 85: with 38

Grade 1 & 47 Grade 2. We used "SHOW & TELL" principle of education to deliver OHI, followed up in Grade 2 with "DO" with TBI using donated toothbrushes. Total of 2000 toothbrushes were given, and the children were shown how to grip and "dry" toothbrush. We observed 2 schools undertake their weekly Fluoride rinse program. The children just hold the solution in the mouth for ~ 30 seconds then spit. We then emphasized to the teachers the need to "swish" the solution in the mouth for one timed minute, prior to expectoration.

4. Jo and I had the opportunities to talk to the all teachers at the visited schools. We reinforced the use of the modified Bass toothbrushing technique, emphasised the importance of daily use of Fluoride toothpaste, as well as introduced dietary information on the causes of dental decay. We stressed the importance of good toothbrushing everyday, at least once a day, prior to going to bed. Posters were laminated and distributed for best use. 5. Mobile clinics were set up at Long-Hai & Long-Dat. Resources were left for treatment and education at those clinics. The personnel at these clinics were motivated to join and assist us in these two weeks.

Discussion:

The whole time I spent at Vietnam was not all work-work-work. During the first two weeks, every weekday after work, the local colleagues would promptly drive us down to the resorts close by for a swim at the beach. Then the night is usually filled with outings to the local coffee shop or hotel bar for a drink and karaoke. Lunchtime is usually at least two hours long where you have a choice to siesta or join one of the locals for a stroll down to the market, then to their place for lunch which were often filled with delicious Vietnamese cuisine. On Friday nights the local colleagues would drive us to the holiday resort Vung-tau for seafood at the

famous restaurants, then we would go for a stroll along the beach, enjoy the cool sea breeze, have some coconut ice-cream before we head home for a good night of sleep. On weekends, we would be back at the luxury hotel in HCMC before we were taken out for some sightseeing around town. On Saturday 17th January, we joined the other Aussies in HCMH got together at Van-Thanh Tourist Site and celebrate an early Australia Day. There was a big crowd that night, we met not only other fellow Australians but other foreigners working in Vietnam as well. Cuisine include the old famous Aussie BBQ and Foster beer. Amongst the many popular Australian entertainers for the night, I can remember Neil Finn very clearly.

After two weeks of work under the scorching heat of South Vietnam, the team was rewarded with one week of holiday tour to the famous highland Dalat for some cool breeze, then to the beautiful beaches of Nha-Trang for a swim. Afterwards, the team flew home to Australia but I stayed behind for an extra two weeks visiting and celebrating the Vietnamese New Year with my relatives.

This holiday break was the most memorable one for me. I can not imagine spending time in a more productive yet enjoyable way. I would like to take this opportunity to express my greatest gratitude to those who help made this dream of mine come true. My appreciation goes to Rotary International for allowing me this special opportunity to work as a volunteer in Vietnam. Thank you to all other team members for their companionship, especially BA Jamie who looked after me so well. An enormous "CA'M O'N" goes to all colleagues and friends in Vietnam for their friendship and hospitality. Last but not least, thanks to my family for their support, especially to my brother who made it all financially possible.

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